TECHNICAL REVIEW DOCUMENT
for
RENEWAL OF OPERATING PERMIT 95OPJE084

TXI Operations, LP – Boulder Plant
Jefferson County
Source ID 0590409

Prepared by Bailey Smith
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I. Purpose

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewed Operating Permit for the TXI Boulder Plant. The previous Operating Permit for this facility was issued on January 1, 2004, was last revised on October 6, 2006 and expired on January 1, 2009. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal operating permit is issued and any previously extended permit shield continues in full force and operation.

This document is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted on December 27, 2007, previous inspection reports and email correspondences with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at http://www.cdphe.state.co.us/ap/Titlev.html. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility consists of a shale quarry, shale crushers, conveyors, raw material and product storage silos, kiln and product processing and handling facilities. Kiln fuel is primarily coal with natural gas available as back-up. Pollution control equipment consists of a baghouse and lime scrubber to treat kiln exhaust air, and baghouses at the shale secondary crusher, shale silos, product cooler, product crusher, product

screening, product transfer points and product silos. Coal is received by rail and stored on the plant site. Coarse finished product is also stockpiled on-site. Fugitive emissions at the quarry and plant are controlled by watering and other procedures.

The facility is located in the area of Superior, Colorado on Highway 93, just south of the Jefferson-Boulder County line. The Denver Metro Area is classified as attainment/maintenance for particulate matter less than 10 microns in diameter (PM_{10}) and carbon monoxide (CO). Under that classification, all SIP-approved requirements for PM_{10} and CO will continue to apply in order to prevent backsliding under the provisions of Section 110(l) of the Federal Clean Air Act. The Denver Metro Area is classified as non-attainment for ozone and is part of the 8-hr Ozone Control Area as defined in Regulation No. 7, Section II.A.1.

There are no affected states within 50 miles of the plant. Rocky Mountain National Park, Rawah Wilderness Area and Eagles Nest Wilderness Area are Federal Class I designated areas within 100 kilometers of the plant.

This facility is categorized as a NANSR major stationary source (Potential to Emit of $NO_X \geq 100$ Tons/Year). Future modifications at this facility resulting in a significant net emissions increase (see Reg 3, Part D, Sections II.A.26 and 42) for VOC or NO_X or a modification which is major by itself (i.e. a Potential to Emit of ≥ 100 TPY of either VOC or NO_X) may result in the application of the NANSR review requirements.

Based on the information provided by the applicant, this source is categorized as a minor stationary source for PSD as of the issue date of this permit. Any future modification which is major by itself (Potential to Emit of ≥ 250 TPY) for any pollutant listed in Regulation No. 3, Part D, Section II.A.42 for which the area is in attainment or attainment/maintenance may result in the application of the PSD review requirements

Potential emissions (in tons/yr) at the facility are as follows:

Plant ID	Emission Unit	CO	NO_X	PM	PM_{10}	SO_X	VOC
P001	Rotary Kiln	128.4	248	25	25	150	22
P002	Product Cooler			25.97	14.02		
P003	Secondary Crushing			4.54	2.2		
P004	Raw Shale Storage Silo			3.67	1.98		
P006	Product Silos			2.45	1.32		
P007	Product Crushing			11.38	6.14		
P008	Lime Scrubber Feeder			0.84	0.46		
P010	Fugitive Emissions			17.16	7.12		
P012	New Kiln Dust Silo			3.25	3.25		
P013	Primary Crushing			0.73	0.35		
P014	Extruder			0.25	0.25		
P016	Product Screening			2.10	1.00		
P018	Kiln Dust Silo			4.51	4.51		
Total		128.4	248	101.85	67.60	150	22
Actual Emissions (2010)		46.78	117.65	18.16	11.07	24.1	1.7

Applicable Requirements

Greenhouse Gases

In 2009 and 2010, EPA issued two rules related to Greenhouse Gasses (GHG) that may affect the facility.

On October 30, 2009, EPA published a rule for the mandatory annual reporting of GHG emissions to EPA from large GHG emissions sources in 40 CFR part 98. The facility may be required to identify GHG emissions in future Title V permit applications. Such identification may be satisfied by including some or all of the information reported to EPA to meet the GHG reporting requirements.

III. Discussion of Modifications Made

Source Requested Modifications

The renewal application received on December 27, 2007 requested the following modifications:

- Change in the responsible official.
- Remove Condition 4.8.3.3, which identifies any 2-hour average of the wet scrubber pressure drop (ΔP) that is less than 90 percent of the average value recorded during the most recent performance test as a deviation.

The source's requested modifications were addressed as follows:

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- Revised the responsible official in accordance with information submitted in the renewal application

Section II – Specific Permit Terms

- The requirement in question, Condition 4.8.3.3 (new Condition 1.11.2.1) is the requirement from NSPS Subpart UUU for Calciners (§ 60.735(c)(2)). The source requested that the occurrence of a ΔP less than 90% of the test value not be considered a violation.

  This condition is mandated by federal requirements and will remain applicable. However, the reason for the requested change is due to several reported exceedances for low differential pressures during startup. These exceedances typically occur for 12-14 days a year. NSPS General Provisions specifies that emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit (§ 60.8(c)). Note that exceedances of control device operating parameters are not an exceedance of the emission limitation but may be an indication of compromised control device operation and failure to operate the kiln in accordance with good air pollution control practices (§ 60.11(d)). Although the PM emission limitations do not apply during periods of startup, shutdown and malfunction (§ 60.8(c)), exceedances of control device operating parameters must be reported during all periods of kiln operation, including

periods of startup, shutdown and malfunction. Reports of control device operating parameter exceedances should indicate if such exceedance occurred during periods of startup, shutdown and malfunction.

Regular exceedances during normal operation could be an indication of compromised control equipment. At the Divisions discretion, these exceedances could be further investigated and if a violation was suspected, the Division could require the source to conduct a stack test. A failed stack test would be considered a violation of the emission limit. The stack testing record at TXI Boulder has shown that at lower scrubber differential pressures (less than 90% of the most recent performance test), emissions are within emission limitations.

Other Modifications

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal. These changes are as follows:

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- It should be noted that the monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).

Section I – General Activities and Summary

- Revised the language in Condition 1.4 include current conditions that are state-only enforceable.
- Updated Condition 3.1 (status of source with respect to PSD requirements) to reflect Division's current standard language and current Regulation No. 3 citations.
- Updated Condition 1.5 to identify the emissions units which became subject to the provisions of the CAM program upon renewal issuance.

Section II – Specific Permit Terms

- This section of the permit was restructured, reformatted and streamlined to improve readability.
- The emission factors for the rotary kiln were updated to reflect the most recent stack testing results. Additionally, the emission factor for PM was changed from

based on coal feed rate to shale feed rate. Considering the kiln is kept at a constant temperature, it is likely that the changes in PM emissions at the kiln will be more dependent on the amount of shale processed than coal fired.

- The performance testing language was updated to require a kiln stack test every five years. The original issuance the permit specified a one-time test during the permit term. This requirement was intended to remain in the renewal issuance of the permit and was developed with the expectation that a renewal permit would be issued every five years. To account for the likelihood of Title V permitting backlogs, this condition has been modified to specify that stack testing should occur every five years regardless of permit status.

- The kiln is subject to the Regulation No. 1 SO_2 requirement of 1.2 lb SO_2/MMBtu. The 2008 stack test will suffice as a performance test to demonstrate compliance with the requirement. Since the pH system has been approved as substitute CEMs, compliance with this SO_2 requirement will be presumed provided the provision of the pH system requirements are met.

- The emission factor for P003, the secondary shale crusher, was changed to correct a typographical error.

- According to an internal memo the Division considers material handling, including silos, to be manufacturing processes. Therefore such sources are subject to the short term processing particulate matter limits in Regulation No. 1. The renewal issuance included the applicable requirements for P006, P012 and P018 since the points were not previously identified as subject to these short term limits. The kiln silo (P018) and new kiln silo (P012) have processing rates below 30 tons/hr and are therefore subject to the limits in Reg 1 Section III.C.1. The product silos (P006) has a process rate greater than 30 tons/hr and is subject to Section III.C.2.

- The requirements in Regulation No. 6 for manufacturing processes are applicable to most of the emission units at this facility. The requirements in Reg 6 are identical to the requirements in Reg 1 however Reg 6 requirements do not apply during periods of start-up, shutdown and malfunction. Therefore, the Reg 6 requirements for particulate emissions and opacity have been streamlined out of the permit.

- The frequency of fugitive emission calculations was changed from once annually to 12 month rolling total. The 12 month rolling total aligns with the required calculations for all other permitted activity onsite.

- A 2006 performance test on emission units equipped with a baghouse indicated compliance with the particulate concentration limits and the short-term limits. Language was added to both the particulate concentration and short-term emission limitation requirements to specify that compliance will be presumed given that the control equipment is properly maintained.

- CAM requirements were added for all applicable emission units.

- The visible emission observation requirements for the fugitive emissions were changed. The original issuance of the permit required periodic Method 9 observations to be performed. For a Method 9 to be performed on fugitive emissions, it must be conducted at the fence line of the facility. The particulate emission control plan specifies "no offsite transport", so any visible emissions observed at the fence line would not be in alignment with the guidelines. Therefore, the permit was changed to a one-time Method 22 to demonstrate compliance.

(New) Emergency Generator

- Engine is subject to NESHAP Subpart ZZZZ, which has not yet been adopted by the state. These federal-only requirements were included in the permit.
- The engine is subject to the opacity requirements in Reg 1.

(New) Gasoline Storage Tank

- Tank is subject to NESHAP Subpart CCCCCC, which has not yet been adopted by the state. These federal-only requirements were included in the permit.
- The tank is subject to the opacity requirements in Reg 1, however since the only emissions from the tank will be VOC and the Division typically does not include opacity regulations for VOC sources, the opacity requirements were not included.

Section III – Permit Shield

- Updated the Reg 3 Citation for the permit shield

Section IV – General Permit Conditions

- Updated the general permit conditions to the current version (11/16/2010).

Appendices

- Updated Appendices B and C (Monitoring and Permit Deviation Reports and Compliance Certification Reports) to the newest versions (2/20/2007).
- EPA's mailing address was revised in Appendix D.
- Cleared the list of modifications from Appendix F related to the previous issuance.
- A detailed CAM plan was added to Appendix G. For each CAM unit, the source will conduct visible emissions observations daily and monitor the pressure drop across each baghouse weekly. The rotary kiln is not subject to CAM for SO_2 control since at the time the CAM plan was required the Title V permit specified a continuous compliance determination method (40 CFR Part 64 § 64.2(b)(1)(vi), as adopted by reference in Colorado Regulation No. 3, Part C, Section XIV). The rotary kiln is subject to these requirements for PM control and the baghouse monitoring requirements were added accordingly.